

PATENT ABSTRACTS OF JAPAN

*Considered
6/8/05
Han*

(11)Publication number : 05-129407

(43)Date of publication of application : 25.05.1993

(51)Int.Cl.

H01L 21/66
H01L 21/68

(21)Application number : 03-285308

(71)Applicant : NEC KYUSHU LTD

(22)Date of filing : 31.10.1991

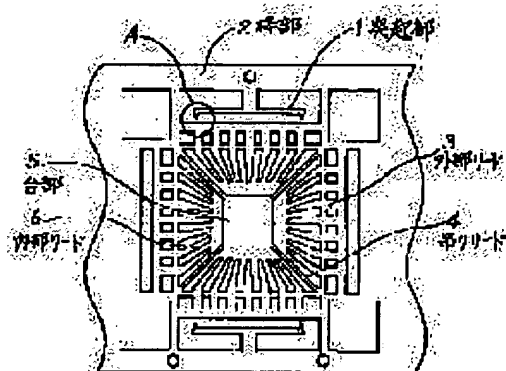
(72)Inventor : MOROI SADAYUKI

(54) LEAD FRAME FOR SEMICONDUCTOR DEVICE

(57)Abstract:

PURPOSE: To detect the position deviation amount and the direction of a lead frame part and an internal pattern which are caused by contraction stress of sealing resin or the other external force.

CONSTITUTION: A protruding part 1 for detecting position deviation is led out from a lead frame edge 2 and arranged in the vicinity of outer leads 3, suspension leads 4, etc. One or more pairs of the position deviation detecting parts 1 are arranged. From the position deviation amount and the direction detected by each position deviation detecting part 1, the total deviation amount and the direction can be known.



LEGAL STATUS

[Date of request for examination]

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of

rejection]

[Date of requesting appeal against examiner's
decision of rejection]

[Date of extinction of right]

Copyright (C); 1998,2003 Japan Patent Office

* NOTICES *

JPO and NCIPi are not responsible for any damages caused by the use of this translation.

1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. **** shows the word which can not be translated.
3. In the drawings, any words are not translated.

CLAIMS

[Claim(s)]

[Claim 1] The leadframe for semiconductor devices characterized by having a height used as the criteria which detect the location gap with a part for a leadframe frame part, and an internal pattern.

[Translation done.]

*** NOTICES ***

JPO and NCIPi are not responsible for any damages caused by the use of this translation.

1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. **** shows the word which can not be translated.
3. In the drawings, any words are not translated.

DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Industrial Application] Especially this invention relates to the structure for detecting the variation rate after a resin seal about the leadframe for semiconductor devices.

[0002]

[Description of the Prior Art] Conventionally, this kind of leadframe for semiconductor devices is constitutionally divided roughly into the semiconductor device loading rest 5, the internal pattern which hangs and consists of lead 4, internal lead 6, and external lead 3, and the leadframe frame part 2, as shown in drawing 4 . And in between for a leadframe frame part [pattern / internal], the slit 7 was formed, and it had become the structure which eases the contraction stress of closure resin.

[0003] Moreover, at each process of semiconductor device assembly, the round hole 8 prepared in a part for a leadframe frame part was used as positioning criteria at the time of processing in many cases.

[0004]

[Problem(s) to be Solved by the Invention] In such a conventional leadframe for semiconductor devices, when deviation arose in the physical relationship for an internal pattern and a leadframe frame part according to the contraction stress or a certain external force after hardening of closure resin, there was a fault that it was undetectable.

[0005] Therefore, when it positioned in the round hole 8 grade for a leadframe frame part and the tie rod section was pierced by metal mold punch at the tie rod cutting process, it was pierced in the location shifted.

[0006] Especially, with the large-sized plastic molded type package, even if there were few [the amount of displacement by resin contraction] amounts of displacement in the large thing which has narrow external lead spacing, the effect was large and made tie rod cutting processing difficult.

[0007] The purpose of this invention solves said trouble and is to offer the leadframe for semiconductor devices it was made for location gap not to produce at a cutting process.

[0008]

[Means for Solving the Problem] With the configuration of the leadframe for semiconductor devices of this invention, it is characterized by having a height used as the criteria which detect the location gap with a part for a leadframe frame part, and an internal pattern.

[0009]

[Example] The top view in which drawing 1 shows the leadframe for semiconductor devices of one example of this invention, and drawing 2 are the expansion top views of the circle A section of drawing 1 .

[0010] drawing 1 and drawing 2 -- setting -- this example -- the height 1 for location gap detection -- the leadframe frame part 2 -- drawing -- the external lead 3 -- hanging -- near lead 4 grade -- arranging -- and the external lead 3 -- it hangs and heights 9 or a crevice is established in lead 4 grade.

[0011] One or more pairs of location gap detecting elements which consist of such a height 1, heights, or a crevice can be arranged, and the amount of gaps and direction of the whole internal pattern can be known from the amount of location gaps in each location gap detecting element, or a direction.

[0012] Drawing 3 is the top view showing the location gap detecting element of other examples of this invention.

[0013] In drawing 3 , by this example, the configuration of the height 1 for location gap detection is made into a rectangle, the part which the external lead 3 or others hangs and has the right-angled configuration in the part of lead 4 and the internal lead 6 is used, and the height 1 for location gap detection is arranged near [the] the part.

[0014] In this example, detection of the variation rate of a hand of cut is easy, and since it is easy to carry out image recognition, the automatic displacement detection by image recognition equipment is possible.

[0015]

[Effect of the Invention] As explained above, this invention by having the height for location gap detection drawn from a part for a leadframe frame part When the location gap with a part for a leadframe frame part and an internal pattern arises according to the contraction stress of closure resin, or other external force, In the large tie rod cutting process of the effect it is effective in the amount of displacement and direction being easily detectable, and according especially to a location gap If the equipment which gave the device which can tune positioning finely with the facility is used, since it can be processed, without also using as a defective the leadframe which the location gap produced and can be manufactured as usual by the usual etching processing etc., It is effective in not being accompanied by the rise of the price of a leadframe.

[Translation done.]

* NOTICES *

JPO and NCIPi are not responsible for any damages caused by the use of this translation.

1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. **** shows the word which can not be translated.
3. In the drawings, any words are not translated.

TECHNICAL FIELD

[Industrial Application] Especially this invention relates to the structure for detecting the variation rate after a resin seal about the leadframe for semiconductor devices.

[Translation done.]

*** NOTICES ***

JPO and NCIPi are not responsible for any damages caused by the use of this translation.

1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. **** shows the word which can not be translated.
3. In the drawings, any words are not translated.

PRIOR ART

[Description of the Prior Art] Conventionally, this kind of leadframe for semiconductor devices is constitutionally divided roughly into the semiconductor device loading rest 5, the internal pattern which hangs and consists of lead 4, internal lead 6, and external lead 3, and the leadframe frame part 2, as shown in drawing 4 . And in between for a leadframe frame part [pattern / internal], the slit 7 was formed, and it had become the structure which eases the contraction stress of closure resin.

[0003] Moreover, at each process of semiconductor device assembly, the round hole 8 prepared in a part for a leadframe frame part was used as positioning criteria at the time of processing in many cases.

[Translation done.]

*** NOTICES ***

JPO and NCIPi are not responsible for any damages caused by the use of this translation.

1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. **** shows the word which can not be translated.
3. In the drawings, any words are not translated.

EFFECT OF THE INVENTION

[Effect of the Invention] As explained above, this invention by having the height for location gap detection drawn from a part for a leadframe frame part When the location gap with a part for a leadframe frame part and an internal pattern arises according to the contraction stress of closure resin, or other external force, In the large tie rod cutting process of the effect it is effective in the amount of displacement and direction being easily detectable, and according especially to a location gap If the equipment which gave the device which can tune positioning finely with the facility is used, since it can be processed, without also using as a defective the leadframe which the location gap produced and can be manufactured as usual by the usual etching processing etc., It is effective in not being accompanied by the rise of the price of a leadframe.

[Translation done.]

*** NOTICES ***

JPO and NCIPi are not responsible for any damages caused by the use of this translation.

1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. **** shows the word which can not be translated.
3. In the drawings, any words are not translated.

TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention] In such a conventional leadframe for semiconductor devices, when deviation arose in the physical relationship for an internal pattern and a leadframe frame part according to the contraction stress or a certain external force after hardening of closure resin, there was a fault that it was undetectable.

[0005] Therefore, when it positioned in the round hole 8 grade for a leadframe frame part and the tie rod section was pierced by metal mold punch at the tie rod cutting process, it was pierced in the location shifted.

[0006] Especially, with the large-sized plastic molded type package, even if there were few [the amount of displacement by resin contraction] amounts of displacement in the large thing which has narrow external lead spacing, the effect was large and made tie rod cutting processing difficult.

[0007] The purpose of this invention solves said trouble and is to offer the leadframe for semiconductor devices it was made for location gap not to produce at a cutting process.

[Translation done.]

* NOTICES *

JPO and NCIPi are not responsible for any damages caused by the use of this translation.

1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. **** shows the word which can not be translated.
3. In the drawings, any words are not translated.

MEANS

[Means for Solving the Problem] With the configuration of the leadframe for semiconductor devices of this invention, it is characterized by having a height used as the criteria which detect the location gap with a part for a leadframe frame part, and an internal pattern.

[Translation done.]

* NOTICES *

JPO and NCIPi are not responsible for any damages caused by the use of this translation.

1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. **** shows the word which can not be translated.
3. In the drawings, any words are not translated.

EXAMPLE

[Example] The top view in which drawing 1 shows the leadframe for semiconductor devices of one example of this invention, and drawing 2 are the expansion top views of the circle A section of drawing 1.

[0010] drawing 1 and drawing 2 -- setting -- this example -- the height 1 for location gap detection -- the leadframe frame part 2 -- drawing -- the external lead 3 -- hanging -- near lead 4 grade -- arranging -- and the external lead 3 -- it hangs and heights 9 or a crevice is established in lead 4 grade.

[0011] One or more pairs of location gap detecting elements which consist of such a height 1, heights, or a crevice can be arranged, and the amount of gaps and direction of the whole internal pattern can be known from the amount of location gaps in each location gap detecting element, or a direction.

[0012] Drawing 3 is the top view showing the location gap detecting element of other examples of this invention.

[0013] In drawing 3, by this example, the configuration of the height 1 for location gap detection is made into a rectangle, the part which the external lead 3 or others hangs and has the right-angled configuration in the part of lead 4 and the internal lead 6 is used, and the height 1 for location gap detection is arranged near [the] the part.

[0014] In this example, detection of the variation rate of a hand of cut is easy, and since it is easy to carry out image recognition, the automatic displacement detection by image recognition equipment is possible.

[Translation done.]

*** NOTICES ***

JPO and NCIPi are not responsible for any damages caused by the use of this translation.

1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. **** shows the word which can not be translated.
3. In the drawings, any words are not translated.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is the top view of the leadframe for semiconductor devices of one example of this invention.

[Drawing 2] It is the top view having expanded and shown the round part of drawing 1.

[Drawing 3] It is the top view of the location gap detecting element of other examples of this invention.

[Drawing 4] It is the top view of the conventional leadframe for semiconductor devices.

[Description of Notations]

- 1 Height for Location Gap Detection
- 2 Leadframe Frame Part
- 3 External Lead
- 4 Hang and Lead.
- 5 Semiconductor Device Loading Rest
- 6 Internal Lead
- 7 Slit
- 8 Round Hole
- 9 Heights

[Translation done.]

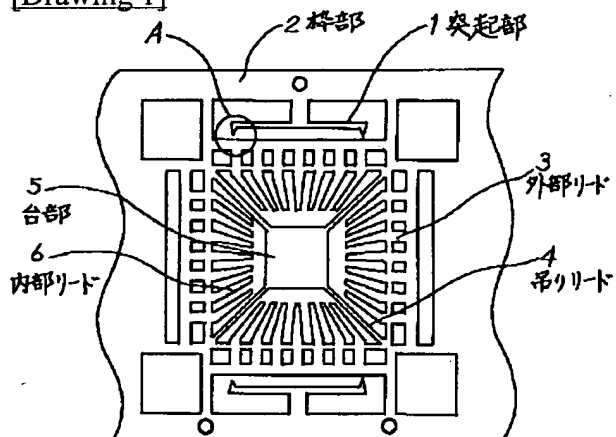
* NOTICES *

JPO and NCIPi are not responsible for any damages caused by the use of this translation.

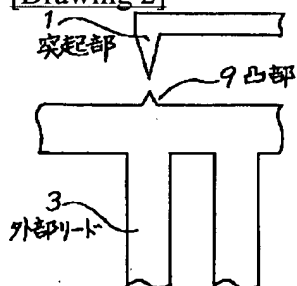
1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. **** shows the word which can not be translated.
3. In the drawings, any words are not translated.

DRAWINGS

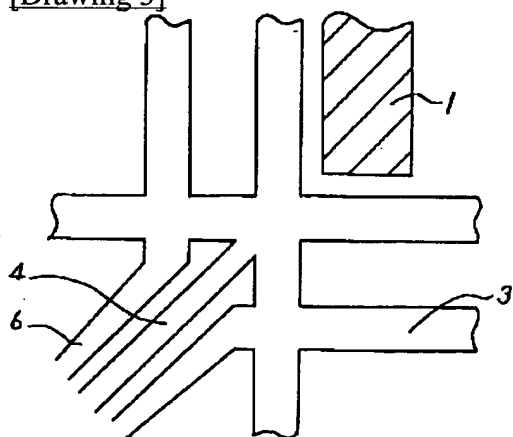
[Drawing 1]



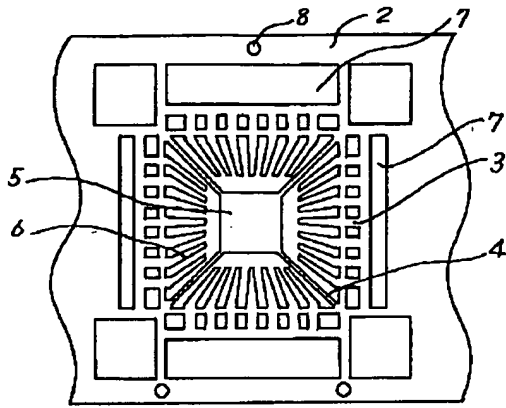
[Drawing 2]



[Drawing 3]



[Drawing 4]



[Translation done.]